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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,052	03/04/2002	Theodore M. Taylor	108298640US	6701

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EXAMINER

OJINI, EZIAMARA ANTHONY

ART UNIT

PAPER NUMBER

3723

DATE MAILED: 01/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/091,052

Applicant(s)

TAYLOR, THEODORE M.

Examiner

Anthony Ojini

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-58 is/are pending in the application.
- 4a) Of the above claim(s) 3,8-27,30,35,36,46,47 and 49-58 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 37-43 and 48 is/are allowed.
- 6) ☒ Claim(s) 1,2,4,28,29,31 and 44 is/are rejected.
- 7) ☒ Claim(s) 5-7,32-34 and 45 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Applicant's election without traverse of Group I (claims 1-58) and species 1 (Figures 2 and 3A-3D) and cancellation of claims 59-61 in Paper No. 5 is acknowledged. Applicant stated that claims 1, 2, 4-7, 11, 12, 14-17, 28, 29, 31-34, 37, 38, 40, 41, 44, 45, and 48. However, claims 3, 8-27, 30, 35, 36, 46, 47, 49-58 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Claim 11 is not readable because the expression "wherein the second planarizing surface is conditioned to have the second texture such that the first texture removes material from a planar surface slower than the second texture" reads on non-elected species II (fig. 4).

Election was made **without** traverse in Paper No. 5.

Information Disclosure Statement

The information disclosure statement filed 3/3/03 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: A method for planarizing microelectronic workpieces.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4, 28, 29, 31, 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woo (5,816,891) in view of Ishikawa et al. (6,431,949 B1) and Afif (6,340,327 B1).

With respect to claim 1, Woo discloses a method for planarizing a microelectronic workpiece, comprising:

removing material from a microelectronic workpiece during a first abrasive stage of a planarizing cycle by pressing the workpiece against a first planarizing surface having a first roughness on the first planarizing surface, wherein the first planarizing surface is on a first type of planarizing media (see col. 7, lines 32-36 & fig. 6); and
removing additional material from the workpiece during a second abrasive stage of the planarizing cycle by pressing the workpiece against second planarizing surface having a

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second roughness on the second planarizing surface wherein the second planarizing surface is on the first type of planarizing media (see col. 7, lines 32-36 & fig. 6).

Woo fails to disclose abrasive slurry on both the polishing surfaces and, wherein the first roughness is greater than the second roughness.

Ishikawa et al. disclose a first grinding wheel (56) having a rough grinding surface that is greater than a second grinding wheel (58) having a fine grinding surface.

Afif discloses slurry dispenser (170) that dispenses abrasive slurry on the surface of a polishing pad (120).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide apparatus of Woo with a first grinding wheel having a rough grinding surface that is greater than a second grinding wheel having a fine grinding surface in view of Ishikawa et al. so as to enable the accurate machining without damaging the workpiece and slurry dispenser that dispenses abrasive slurry on the surface of a polishing pad.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide apparatus of Woo with slurry dispenser that dispenses abrasive slurry on the surface of a polishing pad in view of Afif so as to abrade the surface of the wafer.

With respect to claims 2,29, Woo discloses wherein removing material from a microelectronic workpiece comprises providing a first plate and a first planarizing pad on the first plate, the first pad having a surface defining the first planarizing surface; and removing additional material from the workpiece comprises providing a second plate

and a second planarizing pad on the second plate, the second pad having a surface defining the second planarizing surface, and the first and second pads being composed of the same material (see col. 7, lines 32- 48 & fig. 6).

With respect to claims 4,31, Woo discloses wherein pressing the workpiece against the first planarizing surface comprises pressing the workpiece against a planarizing surface of a first pad on a first plate; and pressing the workpiece against the second planarizing surface comprises moving the workpiece away from the first pad and then pressing the workpiece against a planarizing surface of a second pad on a second plate (see col. 7, lines 32- 48 & fig. 6).

With respect to claim 28, Woo is discussed in claim 1 above except the steps of removing a first portion of a cover layer of material on a microelectronic workpiece during a first abrasive stage of a planarizing cycle and removing an overburden portion of material from the cover layer on the workpiece.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide apparatus of Woo with step of removing a first portion of a cover layer of material on a microelectronic workpiece during a first abrasive stage of a planarizing cycle and removing an overburden portion of material from the cover layer on the workpiece, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. See also *Ballas Liquidating Co. v. Allied industries of Kansas, Inc.* (DC Kans) 205 USPQ 331.

With respect to claim 44, Woo discloses is discussed in claim 1, except the step of

determining when the microelectronic workpiece is at least approximately planar.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide apparatus of Woo with step of determining when a microelectronic workpiece is at least approximately planar, since it has been held that the provision of adjustability, where needed, involves only routine skill in the art. *In re Stevens*, 101 USPQ 284 (CCPA 1954).

Allowable Subject Matter

Claims 37-43, and 48 are allowed.

Claims 5-7 32-34,45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kuan et al., Change et al. disclose CMP system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Ojini whose telephone number is 703 305 3768. The examiner can normally be reached on 7.30 to 5.00 Tuesday-Friday with every other Monday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hail can be reached on 703 308 2687. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 1148.

A handwritten signature in black ink, appearing to read "AOphi", is located to the right of the main text block.

AO
January 22, 2004